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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,255	04/24/2001	Nobuyuki Kambe	2950.01US02	6755

7590 02/06/2006

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EXAMINER

KOSLOW, CAROL M

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,255

Applicant(s)

KAMBE ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-15 and 23-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12, 15 and 23-31 is/are rejected.
- 7) ☒ Claim(s) 10, 13 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

The finality of the rejection of the last Office action is withdrawn in response to the remand from Board of Patent Appeals and Interferences of 14 September 2005. Accordingly, the prosecution is reopened. The Board of Patent Appeals and Interferences and the CAFC decisions in application 09/136,483 are made of record in this case and have been considered as required by the remand from the Board of Patent Appeals and Interferences.

The discussed declaration by Dr. Kambe cited the decisions is not of record in this case. If applicants' want this declaration considered, they must submit it in this case.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference number 132 discussed on page 9, line 22. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference number 131 of figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application.

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Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

This claim teaches the polishing is performed with a motorized polisher. Page 24, line 20 teaches the polishing is performed with a mechanical polisher. Motorized polishers and mechanical polishers are not identical. This discrepancy needs to be corrected by either inserting the claimed polishers into the specification or changing the claimed motorized polisher to mechanical polisher.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 15, 23, 24 and 25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9, 13 and 14 of copending Application No. 09/136,483. Although the conflicting claims are not identical, they are not patentably distinct from each other because the polishing composition of claims 9, 13 and 14 in Application No. 09/136,483 suggests the polishing composition since the ranges overlap those claimed in this application. Since Application No. 09/136,483 claims a polishing composition it would have been obvious to smooth a surface by polishing the surface using the polishing composition of claim 9 in Application No. 09/136,483.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 4, 6, 15, 25, 26, 29 and 31 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 24 and 26 of copending Application No. 09/433,202. Although the conflicting claims are not identical, they are not patentably distinct from each other because the polishing composition of claims in Application No. 09/433,202 suggests the polishing composition since the ranges overlap those claimed in this application. Since Application No. 09/433,202 claims a method polishing the surface using the polishing composition of claim 1 in Application No. 09/43,202. The composition of claim 1 in Application No. 09/43,202 suggests that of claims 15, 26 and 29 since the composition and size ranges overlap. Since claim 26 of the copending application teaches using the composition of claim 1 of the copending application, it also suggests that the

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particle composition of claim 3 and particle size distribution of claim 24 can be used in the process of claim 26. This suggests the composition and process of claims 1, 4 and 6 of this application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Applicants' arguments with respect to this rejection are noted. As discussed in MPEP 804.02, this type of rejection can be made in post-URAA applications and explains the reasons for making such a rejection. Applicants' disagreements with MPEP 804.02 does not overcome the rejection.

Applicants' arguments that the two-way test applies to this application is not convincing since there is no evidence of an administrative delay. For the two-way test to be application both conditions must be met. See MPEP 804(II)(B)(1)(b) and *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993). Applicant states that the two-way test requirement is presumed in the reply brief of 17 May 2001, but does not explain why this is presumed since there is no evidence on the record of an administrative delay. Accordingly, the rejections are maintained.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 26, 29 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 4,842,837.

This reference teaches silica particles used in polishing slurries, thus the reference teaches dispersions of the silica particles, which is a polishing slurry, and the use of this slurry to smooth a surface by polishing the surface with the slurry. The taught silica particles are

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monodispersed particles having a particle size of 50 nm or less. Monodispersed means the particles have a uniform particle size as shown by column 1, lines 41-44, the supplied Webster Dictionary definition, column 2, lines 43-44 in U.S. patent 2,346,553 and column 2, lines 9-10 of U.S. patent 3,586,741. Examples 1, 3 and 4 teach a monodispersed or uniformly sized collection of silica particles, where all the particles in the collection have a size of 25, 42 or 17 nm. Therefore none of the taught collections have a diameter greater than about 5 times the average particle size. The reference teaches the claimed dispersion and method.

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,842,837 in view of U.S. patents 5,318,927; 5,626,715 and 5,389,194.

As stated above, U.S. patent 4,842,837 teaches the claimed dispersion, but it does not teach the carrier liquid for the dispersion or polishing slurry. While U.S. patent 4,842,837 does not teach the carrier liquid of the slurry, one of ordinary skill in the art would have found it obvious to use any known polishing slurry carrier liquid. U.S. patents 5,318,927; 5,626,715 and 5,389,194 all teach aqueous and nonaqueous solutions are conventional polishing slurry carrier liquid. Thus one of ordinary skill in the art would have found it obvious to use the either known aqueous or nonaqueous solutions as the carrier liquid for the polishing slurries of U.S. patent 4,842,837. The references suggest the claimed dispersion.

Applicants' arguments are not convincing. Applicants' argument that the figure is the only support for evaluating the degree of uniformity, but have not explained why the statements in the reference that the particles are uniform and that they are highly monodispersed, given the definition of monodispersed, do not. Applicants have not presented any concrete evidence that

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the taught particle collection include particles that are 5 times the average size in an amount of at least 1 particle in a million particles. The rejection is maintained.

Claims 1, 2, 6-9, 12, 15, 23, 25-27 and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,389,194 or are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 5,626,715.

These references teach a method of smoothing a surface by polishing the surface using a polishing slurry in combination with a rotating polishing pad, which is a type of motorized polisher. The taught polishing slurry is an dispersion of abrasive particles in an aqueous solution. The abrasive particles are either amorphous silica, which has a 100% single crystalline phase, where the crystalline phase is amorphous or alumina, where 100% of the alumina is in the alpha phase. This range falls the ranges of claim 9, 12 and 30. The taught silica and alumina particles have a preferred average particle size in the range of 10-40 nm, which falls within the claimed range, and a size distribution about the average particle size in the range of 10%, 20%, or 30%. Thus the reference teaches all the particles fall within 10% of the average particle size and 110% of the average particle size; within 20% of the average particle size and 120% of the average particle size and within 30% of the average particle size and 130% of the average particle size. These ranges fall within that of claim 1. It is clear that none of the particles in these ranges will be 5 times of average particle size, as shown by the following calculation. Choosing an average particle size of 40, the size distributions which are 10%, 20% and 30% about the average particle size are respectively, 36-44 nm, 32-48 nm and 28-52 nm. Choosing an average particle size of 30, the size distributions which are 10%, 20% and 30% about the average particle size are respectively, 27-33 nm, 24-36 nm and 21-39 nm. Choosing an average particle size of 20, the

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size distributions which are 10%, 20% and 30% about the average particle size are respectively, 18-22 nm, 16-24 nm and 14-26 nm. Choosing an average particle size of 10, the size distributions which are 10%, 20% and 30% about the average particle size are respectively, 9-11 nm, 8-12 nm and 7-13 nm.

Example 3 in both references teaches a polishing slurry comprising alumina particles, where 90 wt% (Z of the example) of the particles are in the alpha phase, which means the alumina particles have a single crystalline phase with a uniformity of 90 wt%. This meets the requirements of claim 9. The taught alumina particles have an average particle size of 10 nm (X of the example) and a distribution about the average particle size of 10% (P in the example) which means all the particles in the slurry are within the range of 10% of the average particle size and 110% of the average particle size or are within the range of 9-11 nm, where Y is 1 nm ('715:claims 3 and 14). This range falls within size range of claim 1 and shows no particles have a size 5 times the average particle size, which would be 50 nm. The references clearly teach the claimed dispersion and process.

Claims 3, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5,389,194 or U.S. patent 5,626,715 as applied to claims 1, 15 and 26 above, and further in view of U.S. patent 5,318,927.

As discussed above, U.S. patent 5,389,194 and U.S. patent 5,626,715 suggests the claimed dispersions and defines them as chemical-mechanical polishing slurries. While the preferred liquid for the taught chemical-mechanical polishing slurries is an aqueous solution, U.S. patent 5,389,194 and U.S. patent 5,626,715 indicate any known liquids for polishing slurries can be used. U.S. patent 5,318,927 teaches non-aqueous based chemical-mechanical

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polishing slurries are known. Therefore one of ordinary skill in the art would have found it obvious would have found it obvious to a non-aqueous solution as the carrier liquid for the chemical-mechanical polishing slurries of U.S. patent 5,389,194 and U.S. patent 5,626,715.

One of applicants' main arguments are that the abrasive particles of the references must be those of U.S. patent 5,128,081 (the Siegel patent). The teachings in U.S. patent 5,389,194 ('194) and U.S. patent 5,626,715 ('715) that the abrasive can also be colloidal amorphous silica or gamma alumina rebuts the arguments that particles of Siegel are the particles of the examples ('194"col. 7, lines 62-67; '715:col. 6, lines 61-66). Thus this argument is not convincing.

Applicants argue the description of the preferred particle size and distributions are unintelligible, but this argument is not convincing since example 1 and 3 in both '715 and '194 clearly show the meanings of X, P and Z and the claims in '715 clearly show the definition of Y. Applicants' have not presented any evidence that one of ordinary skill in the art cannot understand what is taught in the examples. It is noted that the calculations done by the Board of Patent Appeals and Interferences show that the description is understandable to one of ordinary skill in the art.

With respect to the meaning of Q, the Board of Patent Appeals and Interferences and Dr. Singh understood what is meant by the definition, which is a ratio of a concentration of particle having an average particle size x divided by the concentration of particles having a size of less than $x/2$, which is 3 db of x . Only part 10 of the declaration by Dr. Singh originally submitted for application 09/085,514 addressed the teachings in U.S. patent 5,389,194 and U.S. patent 5,626,715. The rest of the declaration is directed to references and rejections not made in this application. It is unclear how Dr. Singh determined the units for his calculations since unit for

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the number, or concentration, of particles having a certain length would nm, not $1/\text{cm}^3$ (which is number of particles divided by the volume of the particles) or $1/\text{cm}^2$ (which is number of particles divided by the area of the particles). In the third paragraph, where he discusses meaning in the patents, his argument is that Q does not correspond to a Gaussian distribution. The Examiner will agree that the taught ratio Q does not reflect a Gaussian size distribution curve since it is a ratio of a number of particles having the average particle size divided by the number of particle having a size of less than 50% of the average particle size. Ratios of concentrations or numbers of particles are not used to determine the maximum and minimum sizes of a particle size distribution curve. The patents do not indicate that Q is used to determine numerical size values of the distribution and thus it would not be used in the determination of the numerical size values of the particles. Q is taught as quality factor which is inversely related to the number value Y, or in other words as the value of Y decreases, the value of Q increases. The fact this quality factor Q is not disclosed in any of the books cited by Dr. Singh and is not a common method of indicating an aspect of a size distribution does not mean that it cannot be determined by one of ordinary skill in the art since the patents do clearly define how to obtain the Q value and provide actual values of Q. The critique of the Q value in this declaration does not show that the taught particles could not be produced at the time of invention and that the claimed particles are different from those taught.

Dr. Singh makes the statement in the declaration that Siegel does not teach a process for making submicron particles but is clear from reading the patent that it does, especially in light of the examples that teach compacting the powers resulting from the process, that it does teach a process for making nanoparticles.

Finally, Dr. Singh makes the statement he is unaware of no approaches for the formation of the claimed silica particles except by applicants' process. This statement amounts to an affirmation that the affiant has never seen the claimed subject matter before. This is not relevant to the issue of anticipation or nonobviousness of the claimed subject matter and provides no objective evidence thereof. See MPEP § 716. Accordingly, it does not overcome the rejection.

Applicants' arguments with respect to a tail is not convincing. There has been no showing that the taught particle distributions have any particles whose size is outside the claimed ranges.

Applicants argue the patents are not enabling for the claimed invention. The basis for this statement, according to applicants', are found in the arguments presented in the parent application. Since these arguments are not of record in this case, they cannot be used as evidence supporting applicants' arguments.

Applicant refers to arguments in the prior application. Arguments filed during the prosecution of the prior application do not automatically become a part of this application. Where it is desired to rely on an earlier filed argument, the applicant should make the remarks of record in this application.

The declaration originally filed in application 08/961,735 has been considered but is not convincing. U.S. patent 5,352,277, which has a publication date of 10/4/94 and a filing date of 12/11/98, shows using ultrafiltration to remove nanosized particles and that ultrafiltration filters have a pore sizes in the range of 2-1000 nm (col. 18, line 45-col. 19, line 41). The article by Ford teaches on page 5 (or 40) removing nanosized particles outside a specific size to give a preferred size distribution. Given that ultrafiltration processes and apparatus were known as of 1998, this

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shows that filtration techniques and filter were publicly available which would allow one of ordinary skill in the art to remove particle outside the distributions taught in the patents. It is noted that applicants use a commercially available filter in the apparatus used in their specification to trap particles having a desired particle size and which would remove those particles smaller than the desired size range.

Claims 10, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

There is no teaching or suggestion of a polishing composition containing a dispersion of particles having an average particle diameter from about 5 nm to about 50 nm, a distribution of diameters such that at least about 95% of the particles have a diameter greater than 60% of the average diameter and less than about 140 of the average diameter and having a single crystalline phase with a uniformity of at least about 90 wt%, where the particle has the composition of claim 10 or the particle is non-silicon metal compound having a purity of at least about 99 wt%.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.


The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
February 3, 2006


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